

### **Claims**

1. (Original) A method of generating a simulated microarray image, the method comprising:

receiving a plurality of simulation parameters; and

generating the simulated microarray image based at least on the simulation parameters.

2. (Original) A computer-readable medium comprising computer-executable instructions for performing the method of claim 1.

3. (Original) A method comprising:  
generating a simulated microarray image based on simulation parameters, wherein the simulated microarray image is associated with known values; and  
analyzing the simulated microarray image via a microarray imaging procedure, the analyzing comprising calculating observed values.

4. (Original) A computer-readable medium having computer-executable instructions for performing the method of claim 3.

5. (Original) The method of 3 further comprising:  
  
comparing the known values with the observed values to benchmark the  
  
microarray imaging procedure.
6. (Original) The method of claim 7 further comprising:  
  
generating a rating based on results of the comparing, wherein the rating indicates  
  
effectiveness of the microarray imaging procedure.
7. (Original) The method of claim 3 wherein the values comprise spot  
  
intensity values.
8. (Original) The method of claim 3 wherein the generating comprises  
  
simulating a fluorescent background level for the simulated microarray image.
9. (Original) The method of claim 3 wherein the generating comprises  
  
simulating spots for the simulated microarray image.
10. (Original) The method of claim 3 wherein the generating comprises  
  
simulating post-processing phenomena for the simulated microarray image.

11. (Previously Presented) A method for simulating a microarray, comprising:  
defining a plurality of parameters;  
generating a simulated microarray according to the parameters using an imaging  
procedure;  
comparing the simulated microarray to a known value; and  
evaluating the imaging procedure in response to the comparison.

12. (Original) A computer-readable medium having computer-executable  
instructions for performing the method of claim 11.

13. (Previously Presented) A computer-implemented method of generating a  
simulated microarray image, the method comprising:  
receiving a plurality of simulation parameters; and  
generating the simulated microarray image based at least on the simulation  
parameters.

14. (Currently Amended) A computer-readable medium comprising  
computer-executable instructions for performing ~~the method of claim 13~~ a computer-  
implemented method of generating a simulated microarray image, the method  
comprising:  
receiving a plurality of simulation parameters; and

**generating the simulated microarray image based at least on the simulation parameters.**

15. (Previously Presented) The computer-implemented method of claim 13 wherein the simulated microarray image is associated with known values, the method further comprising:

analyzing the simulated microarray image via a microarray imaging procedure, the analyzing comprising calculating observed values; and  
comparing the known values with the observed values to benchmark the microarray imaging procedure.

16. (Previously Presented) The computer-implemented method of claim 15 wherein:

the known values comprise signal intensities;  
the observed values comprise signal intensities; and  
the comparing compares the signal intensities of the known values with the signal intensities of the observed values.

17. (Previously Presented) The computer-implemented method of claim 13 wherein the simulated microarray image simulates random perturbations in array preparation, printing, and scanning.

18. (Previously Presented) The computer-implemented method of claim 13 wherein the simulated microarray image simulates background noise.

19. (Previously Presented) The computer-implemented method of claim 13 wherein the simulated microarray image simulates radius variation of cDNA deposition spots.

20. (Previously Presented) The computer-implemented method of claim 13 wherein the simulated microarray image simulates spot drift of cDNA deposition spots.

21. (Previously Presented) The computer-implemented method of claim 13 wherein the simulated microarray image simulates center core variation of cDNA deposition spots.

22. (Previously Presented) The computer-implemented method of claim 13 wherein the simulated microarray image simulates chord removal of cDNA deposition spots.

23. (Previously Presented) The computer-implemented method of claim 13 wherein the simulated microarray image simulates edge noise of cDNA deposition spots.

24. (Previously Presented) The computer-implemented method of claim 13 wherein the simulated microarray image simulates edge enhancement of cDNA deposition spots.

25. (Previously Presented) The computer-implemented method of claim 13 wherein the simulated microarray image simulates signal intensity.

26. (Previously Presented) The computer-implemented method of claim 13 wherein the simulated microarray image simulates channel conditioning.

27. (Previously Presented) The computer-implemented method of claim 13 wherein the simulated microarray image simulates spike noise.

28. (Previously Presented) The computer-implemented method of claim 13 wherein the simulated microarray image simulates scratch noise.

29. (Previously Presented) The computer-implemented method of claim 13 wherein the simulated microarray image simulates snake noise.

30. (Previously Presented) The computer-implemented method of claim 13 wherein the simulated microarray image simulates smoothing.

31. (Previously Presented) The computer-implemented method of claim 13 wherein the generating comprises randomization at a spot level of the simulated microarray image.

32. (Previously Presented) The computer-implemented method of claim 13 wherein the generating comprises randomization at a block level of the simulated microarray image.

33. (Previously Presented) The computer-implemented method of claim 13 wherein the generating comprises randomization at an array level of the simulated microarray image.

34. (Canceled)

35. (Canceled)